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THE PLANT DISEASE REPORTER

Issued by

THE PLANT DISEASE SURVEY, DIVISION OF MYCOLOGY AND DISEASE SURVEY
BUREAU OF PLANT INDUSTRY, UNITED STATES DEPARTMENT OF AGRICULTURE

Volume XXVI July 1/15, 1942 Number 12/13

The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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TOMATO TIP-BLIGHT FOUND IN WEST VIRGINIA

J. G. Leach and Anthony Berg

In the spring of 1941 a destructive disease of tomato seedlings appeared in a greenhouse near Morgantown, West Virginia. It was first observed in flats of young plants grown for sale to local home gardeners, but it was observed also on field plants obtained from this greenhouse. The disease was characterized by necrotic spots on the leaves and elongated lesions on the stem, and young plants were killed within a few days. The disease was tentatively diagnosed as streak but when attempts to transmit it from tomato to tomato and from tomato to tobacco were unsuccessful, the correctness of the diagnosis was questioned. Because of the pressure of other work no further studies were made until it appeared again in 1942 in the same greenhouse. Further investigations identified the disease as tip-blight caused by a strain of the spotted wilt virus (Lethum anstraliense var. lethale) and transmitted by thrips.

The greenhouse in which the disease occurs is heavily infested with thrips (Thrips tabaci) and transmission experiments with the insect taken from diseased tomatoes have been uniformly successful, while thrips taken from beans in another greenhouse did not transmit the virus.

The disease was eventually transmitted in a very small percentage of trials by mechanical inoculation with the aid of fine carborundum, but all other methods of mechanical inoculation failed. The symptoms agree closely with those described by Milbrath and by Holmes.

What is apparently the same disease has been observed on young pepper plants and on a number of weeds infested with thrips and growing under the greenhouse benches. The disease has not been observed or reported elsewhere in the State. It is probable that tip-blight was introduced into this greenhouse on ornamental plants brought in from a distance. Many kinds of ornamentals are grown in the house and tomatoes are grown only for sale as transplants.

Because of the difficulty in completely controlling thrips and because of the wide range of hosts for both the thrips and the virus, the disease promises to be very difficult to control. The disease is so destructive that every effort must be made to prevent its further spread.

This is apparently the first report of tip-blight in the eastern part of the country, and the second definite determination of its occurrence outside of the Pacific Coast area, the only other record being from Texas. However, Milbrath stated that "a critical review of the literature suggests that tip-blight virus is widely distributed but not recognized" owing to confusion with the spotted wilt virus or to a mixture of the 2 viruses. According to him symptoms indicative of a mixture of both viruses had been described from Australia, California, and Texas, while a report of an "unusual occurrence" of spotted wilt in Utah was more typical of tip-blight (Phytopath. 29:166-167. 1939).

(WEST VIRGINIA UNIVERSITY).

LOOK FOR TOMATO TIP-BLIGHT

Just what is the distribution of tip-blight? The only definite records of occurrence are from Oregon, where the disease and the virus were first described (Milbrath, Phytopath. 29: 156-168. 1939); from Texas, where symptoms attributed by Young, Altstatt, and Harrison (PDR 22: 7. 1938) to spotted wilt suggested to Milbrath a mixture of tip-blight and spotted wilt; and now from West Virginia.

Milbrath's inference of possible occurrence in California, Utah, and Australia is mentioned in Leach and Berg's article above. The circumstances detailed in Blood's report of the Utah disease (PDR 20: 143-144. 1936) point to the seed as the source of infection, but neither the tip-blight nor the spotted-wilt virus is seed-transmitted, as far as known.

In Oregon, the tip-blight disease was at first thought to be due to the spotted wilt virus plus some other undetermined virus. Both viruses occurred together in some localities and sometimes both were found in the same plant, but the tip-blight virus in pure form predominated and made it possible to distinguish the symptoms from those of spotted wilt and to identify the virus as distinct. Since the spotted-wilt virus is ordinarily the only one to be recovered from doubly-infected plants, the effects of the mixture may be ascribed to this virus alone. As already mentioned, Milbrath suggests that this has probably happened more than once. The viruses of tip-blight and of spotted wilt are closely related and in many of their common hosts produce similar symptoms. The host range so far tested for tip-blight is similar to that of spotted wilt, and the vector is the same. Altogether, there may be difficulty in deciding whether tip-blight is the virus concerned in a particular case, even though it is present unmixed.

Milbrath describes the effects produced by the tip-blight virus in certain differential hosts of which tomato itself is one, which he says clearly distinguish this virus from all other tomato viruses. These symptoms are compared with those of spotted wilt and certain other virus diseases with which tip-blight might be confused. Streak is not one of these, but in view of the fact that the disease in West Virginia was at first thought to be streak, there is certainly a possibility that tip-blight may be hiding behind that name in less carefully investigated occurrences.

From his experience with tip-blight in West Virginia, Doctor Leach is impressed with the menace a widespread distribution of this virus would constitute to the tomato industry, and suggests that collaborators be asked to make a careful survey to determine where it actually does occur, as a basis for intelligent efforts to check further spread and establishment in new locations.

It should be borne in mind that danger from tip-blight is not confined to tomatoes. The virus affects a wide range of hosts including a number of perennial ornamentals and weeds that can act as reservoirs and initiate outbreaks whose source might remain obscure. Whether or not it is found in tomatoes, the disease should be looked for in other plants, especially, perhaps, in the vicinity of ornamental nurseries or greenhouses as in the West Virginia occurrence. It is probable that transportation in diseased ornamentals may be the chief

method by which the virus is carried from one place to another.

It is advisable, also, to investigate thoroughly all cases of streak, and especially of spotted wilt. The latter disease has a fairly wide recorded distribution in this country. On tomato it has been reported from all of the Pacific Coast States, and from Utah, Wisconsin, Michigan, Missouri, Illinois, Ohio, Texas, Pennsylvania, and New York. For reasons already given, it would not be strange if tip-blight were also present. Where spotted wilt is found, every effort should be made to determine definitely whether or not tip-blight is present.

TWO CERCOSPORAS NEWLY REPORTED IN THE UNITED STATES

CERCOSPORA ON POPPY IN ALABAMA: Dr. George W. Carver of Tuskegee Institute sends a specimen of Cercospora on the cultivated poppy with the comment that the fungus has been unusually destructive during the present season. The fungus produces numerous circular to irregular dull brown to gray spots up to a cm. in diameter on the leaves. The spots show on both leaf surfaces and often coalesce to form large irregular blotches. The fungus is Cercospora papaveri Muller & Chupp described from and heretofore known only from Brasil. Doctor Chupp confirms the determination, noting however that the specific name is preoccupied so that it will be necessary for him to rename his species. Earlier reports of Cercospora sp. from Texas and Cercosporella sp. from Florida on the cultivated poppy possibly may be referred to the Muller and Chupp species. With these exceptions Doctor Carver's report is the first for the United States. His abundant and carefully prepared specimen is the only material available of the species in the Mycological Collections of the Bureau. (John A. Stevenson, Division of Mycology and Disease Survey).

CERCOSPORA ON BELLADONNA IN VIRGINIA: In Appomatox County, Virginia, 32 acres of the drug plant Atropa belladonna are being grown as a war emergency project. A leaf spot is causing considerable injury according to a report from the county agent accompanying specimens of infected leaves. The fungus on the leaf spots was identified by J. A. Stevenson of the Division of Mycology and Disease Survey as Cercospora atropae Kvashnina, which has not been recorded previously from the United States. (S. B. Fenne, Extension Pathologist, July 3).

PEONY ANTHRACNOSE FOUND IN ILLINOIS

D. B. Creager and G. H. Boewe

In 1915 H. H. Whetzel (2) reported in New York a disease of peony which he referred to as anthracnose, and in 1940 Freeman Weiss (1) briefly discussed a peony anthracnose which was observed in North Carolina in 1938. Neither of these pathologists were able to establish definitely the cause of the disease, and Weiss was unable to determine whether the disease from North Carolina was identical with that found by Whetzel

in New York. These 2 rather limited reports appear to be the only published information on the occurrence of peony anthracnose in this country or abroad.

In 1941 the writers found a disease of peony possessing all of the characteristics of a true anthracnose type of disease in 3 widely separated commercial peony plantings in southern Illinois. The disease recurred in the same plantings again this year. Varieties found infected with this anthracnose were Couronne d'Or, Karl Rosenfield, Sarah Bernhardt, William Penn, and Alsace Lorraine. Couronne d'Or, which appeared in all 3 plantings, was the most severely affected variety.

The disease affects stems, leaves, bud scales, and flower petals. It can be responsible for marked reduction in yield and quality of flowers, as well as complete destruction of stems and, in some cases, death of entire plants. Most infections occur when the shoots are still young and the leaf and stem tissues are quite succulent.

Lesions on stems range from small, elongated reddish spots, which enlarge into lesions with somewhat grayish centers and reddish borders, to extensive zonate cankers. Cankered stems are commonly twisted, bent or curled. When very young stems are infected, they may be rapidly blighted and completely killed.

On the leaves, spots occur along veins as well as in the tissue between the veins and on the petioles. These spots vary from small, elongated reddish lesions, some of which as they enlarge become circular in outline with grayish centers and reddish borders, to irregular brownish lesions at edges of leaf blades. Infected leaves are often curled and puckered, a condition which results when spots develop at the edges of leaflets before the leaves are mature.

Buds are blasted when bud scales and outer petals become infected. Also, development of spots and cankers on the upper portions of stems disfigures and distorts the flower pedicel and can indirectly cause bud blast and otherwise interfere with flower development.

Associated with lesions on stems, leaves, and buds is a species of Gloeosporium which fruits abundantly in the dead tissue. Acervulae from which pink spore masses exude profusely develop, especially in stem cankers and blasted buds. Specific identity of this Gloeosporium has not been fully established, although morphologically it somewhat resembles G. fructigenum Berk.

Results of preliminary inoculation tests conducted on peony plants of the Couronne d'Or variety forced in the greenhouse indicate that the peony Gloeosporium is the anthracnose pathogen. In these studies the pathogenicity of the Gloeosporium isolated from peonies was compared with G. fructigenum isolated from apple fruit lesions. It was found that the apple Gloeosporium caused no infection in peony plants, whether or not stems and leaves were wounded, while the peony Gloeosporium caused infection, resulting in the development of typical anthracnose symptoms, in apparently unwounded as well as wounded stems and leaves.

1. Weiss, Freeman. Anthracnose and Cladosporium stem spots of peonies. Phytopath. 30:409-415. 1940.
2. Whetzel, H. H. Diseases of peonies. Trans. Mass. Hort. Soc. 1915 (1):103-112. 1915.

(SECTION OF APPLIED BOTANY AND PLANT PATHOLOGY, ILLINOIS NATURAL HISTORY SURVEY, URBANA).

DIE-BACK OF SAFFLOWER IN TEXAS

Herbert Rich

Since 1940, safflower, Carthamus tinctorius, has been planted experimentally in Texas as a possible source of drying oil. With the exception of a report of a Septoria leaf spot (P. D. R. 25:389), this crop has been quite free from diseases in Texas. However, in an experimental plot on the grounds of the Temple Substation of the Texas Agricultural Experiment Station, a die-back condition was observed this year which has ruined 80% of the crop. The season has been very wet and humid with 50% more rain in April than has been recorded for this month on the past 10-year average. This high precipitation and humidity persisted at the time the young safflower buds began to form and the disease appeared at that time.

In the first stages of infection, the tips of the stems, all of which bear the blooms, die and become dry and light brown at the time the young buds are forming; this being very noticeable against the light green color of the healthy tissues of the plant. As the disease progresses, it proceeds downward, more and more of the top being blighted with the dead leaves remaining attached to the stem. At a very late stage, all that is left living is a few inches of green trunk with a few green leaves attached while the top of the plant is dead and shriveled.

The scaly bracts of the flowering parts and the stems at the point of attachment of the leaves apparently are the avenues of infection. The first infections appeared in the immature buds and this type was most prevalent. The fungus spreads throughout the base of the bloom until it kills the entire bud, then invades the pedicel and advances downward along the stem, killing all branches and leaves past which it spreads.

The other means of infection is at the base of the leaf at the point of attachment to the stem. In this case, the advancing fungus forms a light brown elongated lesion which spreads up and down the stem. This lesion has been observed to girdle the stem, killing all portions of the plant above it.

A fungus, apparently a species of Gloeosporium, was found fruiting abundantly on the stem lesions. A Gloeosporium, possibly G. carthami but not definitely determined, has been found in Indiana and at Arlington Farm, Virginia, but it is not known whether this is the same disease.

(BLACKLAND EXPERIMENT STATION, TEMPLE, TEXAS).

TESTS WITH TWO VARIETIES OF ROSES FOR RESISTANCE TO BLACK SPOT

E. W. Lyle and G. E. Altstatt

A notation appeared (P. D. R. 24:479, Dec. 15, 1940) to the effect that the rose variety, Susan Louise, was observed to be entirely free from black spot. To determine whether the observation was a case

of complete immunity, a test was conducted at Tyler, Texas under conditions considered optimum for infection by the black spot fungus, Diplocarpon rosae. In addition, tests were made allowing natural infection of bushes in the field at College Station and at Tyler. Similarly, the experiments were tried with the hybrid tea, Pink Princess, which has been considered as disease resistant (McFarland, J. H. In Modern Roses II. p. 179, 1940).

In the first experiment a plant of each of the 2 varieties was potted and grown in the greenhouse for about 5 weeks. The tender, new foliage was then inoculated by atomizing with a suspension of conidia. This was followed by an incubation period of 24 hours in a moist chamber at about 60° to 70° F. Examination about 3 weeks later showed that neither variety was immune and that with the variety Susan Louise cane lesions of black spot were also evident.

in the field test at Tyler, 4 plants of each variety were subjected to normal conditions of care and infection with no artificial inoculation. Records taken June 4, 1942, showed that all plants were infected with black spot. With variety Susan Louise, 44% of the leaflets had symptoms of black spot. With Pink Princess, 22% of the leaflets had symptoms. The latter variety showed only slight defoliation as compared with the first.

At College Station, variety Susan Louise showed mild infection of black spot in April and May, resulting in slight defoliation. However, on June 8 there was only a trace of black spot evident. With variety Pink Princess, both black spot and Cercospora leaf spot were noted June 8, a trace of black spot was found on 1 of 5 plants and Cercospora leaf spot was found on 2 of the plants.

The conclusions are that neither variety is immune from black spot. However, a fair degree of resistance was indicated, particularly for variety Pink Princess.

(TEXAS AGRICULTURAL EXPERIMENT STATION, COLLEGE STATION).

SPERGON FOR SWEETPOTATO TREATMENT: LIMITED TEST IN ARKANSAS

V. H. Young

Through the cooperation of the Arkansas State Plant Board, we treated beds of 3 growers of certified slips with wettable Spergon according to the method used by the Kansas Station last year. It was not possible to arrange for non-treated checks on certified beds, but each bed was divided lengthwise into halves and one half bedded with Spergon-treated sweetpotatoes and the other with sweetpotatoes treated by the standard corrosive sublimate method required by the Board. A number of beds on 3 farms were treated, but records were not kept on one farm and on a second were so incomplete that they are not considered of any value. Mr. Ray Hardy of Farmington kept very careful records of the number of plants pulled from each half of each of 3 beds and results from his plantings are reported in the Tables. Inspectors found no black rot in his beds and only a trace of stem rot, so that it is believed that results have no bearing on control of

Table 1. Variety: Nancy Hall. Bedded April 11, 1942. Bed divided lengthwise and half bedded each to Wettable Spergon- and Corrosive Sublimate-treated seed.
Ray Hardy Farm, Farmington, Arkansas.

Date of pulling	No. of slips pulled	
	Spergon-treated	Corrosive sublimate-treated
May 10	200	100
15	500	0
16	3100	3600
17	1000	1500
20	3000	4500
21	4700	1000
25	2500	3000
29	5500	5900
June 1	2200	2200
5	2400	2300
8	2300	2000
12	1700	1500
15	2100	1800
Totals	31200	29400

Table 2. Variety: Puerto Rico. Bedded April 2, 1942. Treatment and location as in Table 1.

May 4	2300	1700
11	4000	0
12	3900	6500
15	3000	4200
24	1700	1500
29	2000	2100
June 1	1000	1000
5	1700	1400
7	1300	1200
10	1900	1700
15	4000	6000
Totals	26800	27300

Table 3. Variety: Nancy Hall. Bedded April 10. Treatment and location as in Table 1.

May 21	0	2800
23	3700	300
28	2100	2300
June 1	1100	1100
5	2300	2000
8	2000	1900
12	900	800
16	1000	1000
Totals	13100	12200

either of these diseases.

It was the feeling of the grower that the Spergon treatment resulted in a somewhat earlier production of slips. Figures appear to indicate some advantage in earliness for the Spergon-treated beds. At the end of the season total yields seemed not enough different to warrant

any definite conclusions regarding effect of treatments on total yield. (UNIVERSITY OF ARKANSAS).

A TOBACCO SEEDBED SURVEY IN MASSACHUSETTS, 1942

W. H. Davis

A survey of diseases in the tobacco seedbeds located in the Connecticut River Valley was made during the period May 8 to June 8, 1942. This period was chosen because at this time, the growers removed the sash while pulling seedlings for transplanting, and the inspector was afforded a better opportunity than at other times for examining seedlings and detecting both symptoms and parasites.

This tobacco region is a broad river valley shaped somewhat like a trapezium, about 2 miles wide at the north and about 20 miles at the south, extending from the vicinity of Greenfield southward to Westfield which is near the border of Connecticut. The region is enclosed by the Berkshire foothills on the west and by the Pelham hills on the east.

Most of the seedbeds were in the open and constructed of sideboards supporting glazed sash. This year, the beds were seeded between April 1 and April 10. A majority of the growers raised their own seed which was cleaned and tested at the State College Seed Laboratory. Eight growers applied either sprays or dusts as disease preventatives while others simply "took a chance."

Over 80% of the inspected seedbeds contained rotted manures which had been plowed under during the previous autumn and 70% of those growers believed this was a favorable procedure. Fifty % of these seedbeds were prepared in new locations. Every old seedbed that had not been rotated contained either bare areas or diseased and unusable seedlings.

Many growers complained about the cool, cloudy weather which they thought unfavorable for the seedlings because most of them appeared pallored, or a light green color. It is true that there were 11 days in succession with less than 11 hours of bright sunshine. Growers also thought the temperatures were too cool. The average minima for April and May were 41° and 53°F. respectively; maximum temperatures 61° and 73°. Most of the growers were obliged to retain the sash covers during most of the growing period and especially just previous to transplanting, thus depriving the plantlets of their controlled hardening period.

Seedbeds inspected: Within the Valley, 70 representative seedbeds were inspected and a number of these were reinspected at the request of the owners. Most of these inspections proved beneficial since they either confirmed or denied previous suspicious symptoms such as mosaic and a yellowing which was due to sash-shade and cloudy weather.

Acreage: The acreage per grower varied from 120 in the large plantations to 3 on the small farms. One company set about 1200 acres in different locations, but the set on the farms inspected averaged 11.2 acres. Some growers stated that they were "raising some potatoes this year instead of all tobacco."

Seed and seedlings: Most of the seed was homegrown and from the 1940 crop, but 2 growers believed that transplants obtained from

the 1941 seed were smaller and more easily controlled during development. However, this impression has not been verified. Some growers seeded several beds at different periods or at intervals one week apart, thus obtaining a better opportunity both for choosing seedlings of the desired size and vigor when the variable weather was favorable for transplanting, and for harvesting at different periods.

Seed testing and sowing: All the growers but 3 sowed seed cleaned at the M. S. C. Seed Laboratory. Most of the seedbeds were planted during the first week, but some as late as the third week, in April. The earlier seedlings proved preferable.

Ninety % of the growers agreed that they seeded too heavily producing plants that were "too leggy and the chit too high." Careless seed-covering also was observed in many beds. Otherwise the seedbeds were fairly well prepared and seeded.

Diseases: Wildfire [Phytomonas tabaci] was found in 5 seedbeds, 3 of which had been seeded in the same location for the past 3 years and one for 5 years. These plants had not been sprayed or dusted and only 8 of the seedbeds inspected had received any preventative treatments. All diseased plants were removed as soon as observed, the locations marked and the beds reinspected one week later except those with downy mildew.

No attempt was made to determine the organisms causing each separate case of damping-off because the parasites had appeared earlier in the seasons and were either nonviable or inactive. Growers believed that there was more damping-off this year than usual because the conditions were more favorable. The weather had been cool, the soil wet, the seedlings slow growing, crowded, "spindling" and tender. However, as the season advanced damping-off was less prevalent. Thirty % of the seedlings in 3 unsprayed beds had been killed while those nearby in sprayed and dusted seedbeds were healthy. Both brown [undet.] and black root rots [Thielaviopsis basicola] were observed. These were mostly in neglected beds with wet soil.

Downy mildew ("blue mould") [Peronospora tabacina] was first observed at 2 stations about 25 miles apart. A total of 7 seedbeds were found infected: 3 in the Westfield area, 3 near Sunderland, and 1 near Hadley. The seedlings and beds were treated with paradichlorobenzene almost as soon as the disease was detected. In one treated bed, the plantlets were so severely injured by the fungus that they appeared useless and not suitable for transplanting. Applications of P.D.B. as directed controlled this fungus satisfactorily but it was difficult to purchase immediately and the growers did not have an emergency supply. The growers remarked that they did not wish to transplant from these infected seedbeds even after treatments. Three diseased plants were found in the field.

Types of mosaic [virus] were difficult to distinguish from pallor due to the lack and variation of sunlight. However, 12 seedbeds showed mosaic. Diseased plants were removed, their location marked and another inspection made 10 days later, and the plants were dusted to control insects.

A physiological symptom was observed which was called "fish yellows", associated with applications of too much oily fish fertilizer. The plants were chlorotic, somewhat dwarfed, and spindling,

the lower leaves were often rotted, with some root injury. With excessive watering and good care plants often recovered.

Other diseases: Soft rot of the leaves and crown; stunting; belated and poor seed germination; sunburn; drop of the lower leaves; were some of the other symptoms the causes of which were unknown and uncertain, possibly due to a combination of factors.
(MASSACHUSETTS STATE COLLEGE).

REPORTS ON LATE BLIGHT AND OTHER POTATO DISEASES

LATE BLIGHT ON LONG ISLAND (from Weekly News Letter for dates indicated. No late blight has appeared in up-state New York as yet):

June 22 -- Late blight (Phytophthora infestans) was reported as appearing on the South Fork of Suffolk County on June 18 or 19 (W. G. Been), and in the Hicksville area of Nassau County June 20 (H. H. Campbell).

June 29 -- Late blight has appeared here and there in the North Fork and western part of Suffolk County (James E. Dewey).

Late blight is present in many fields in Nassau County, particularly in Cobblers. The past week's weather, with showers followed by temperatures as low as 55°F., permits further blight infections to develop (H. H. Campbell).

One field observed in Nassau County was rather severely infected throughout. It had been treated 3 times with a yellow cuprocide. In other fields the infection centers are few but can be found with a little searching. Most growers have a good covering of copper on, but the vines are rather thick, making it difficult to cover the center and lower leaves. (R. W. Roth).

July 6 -- Late blight did not spread much during the week. Little evidence of blight is to be seen on the North Fork of Suffolk County. It is more generally distributed, but not in serious proportions, in Nassau County. The rains of July 1 and 2 may have increased the spread and intensified the infection. (R. W. Leiby).

Late blight is present in many fields in Suffolk County. Through the day and night of July 2 0.65 inches of rain fell, with a minimum temperature of 69°F. (J. E. Dewey).

LATE BLIGHT IN PENNSYLVANIA: Late blight was first observed on June 25 at Lehighton in Carbon County, by A. H. Bauer. (R. S. Kirby, Pennsylvania State College).

EARLY APPEARANCE OF LATE BLIGHT IN WISCONSIN: Late blight was found June 26 on the Station Farm where seedling potatoes were planted from stock known to be infected. This is the earliest report of late blight in Wisconsin so far as my records show. It is understandable because we have had an excessive amount of rain during recent weeks. (R. E. Vaughan, University of Wisconsin College of Agriculture. July 2).

LOSSES CAUSED BY POTATO DISEASES IN THE HASTINGS SECTION, FLORIDA, IN 1942: The weather was too dry for best development of late blight

(Phytophthora infestans) except in the early crops, and the loss due to it was estimated at 1% which was much below the 11-year average annual loss of 4.8%. Blackleg (Erwinia carotovora) [E. phytophthora], which was found mostly in the Sebago variety, caused the greatest loss, estimated at 3%. Some lots of Sebago seed consistently led to the development of much blackleg in some fields, while in fields planted with other lots of seed, little blackleg appeared. March and April temperatures were too low for the development of brown rot (Bacterium [Phytomonas] solanacearum), which was confined almost entirely to fields planted late and not dug until May 15 and later. Most of the loss due to rhizoctonia (Rhizoctonia solani) occurred in the early part of the season when the causal fungus "burned-off" the young sprouts. The total loss of 6.2% caused by all the potato diseases at Hastings in 1942 is next to the lowest recorded for the last 11 years.
(A. H. EDDINS, POTATO DISEASE INVESTIGATIONS LABORATORY, HASTINGS).

REPORTS ON DISEASES OF SMALL GRAINS

ANTHRACNOSE UNUSUALLY PREVALENT ON WHEAT IN OHIO: Anthracnose of wheat, caused by Colletotrichum cereale [C. graminicolum], is unusually prevalent in Ohio this year. An examination of 45 fields in the northeastern part of the state revealed a wide range of infection varying from a trace to 100%. In 10 of the 45 fields every culm examined was diseased. Fruiting bodies were most conspicuous on the second and third nodes. This is a characteristic of the anthracnose disease of wheat. A leaf blight, when the grain was still in the soft dough stage, was particularly striking, because of the ashy-gray color of the blighted leaves. Later, fruiting bodies of the Colletotrichum developed on them. Anthracnose is of more economic importance than any other disease in many wheat fields in Ohio this year.
(R. C. THOMAS, OHIO AGRICULTURAL EXPERIMENT STATION, JULY 8).

DISEASES OF SMALL GRAINS IN PENNSYLVANIA: Wheat leaf rust (Puccinia triticina) [P. rubigo-vera tritici] was first observed June 4 at Limerick in Montgomery County. Infection was severe on the top leaves when the wheat came into flower and seemed to kill these leaves before the soft dough stage. Throughout the State leaf rust attacked earlier and was more destructive than for many years. The aecial stage of oat crown rust (P. coronata) was found June 13 on a buckthorn hedge at State College. Powdery mildew (Erysiphe graminis) was unusually severe early in the spring on winter barley. (R. S. Kirby, Pennsylvania State College. June 30).

RUSTS IN SOUTHWESTERN VIRGINIA AND IN WEST VIRGINIA: Stem rust (P. graminis) infection in winter wheat fields observed June 18-20 varied from a trace to heavy, while leaf rust was abundant. On oats crown rust occurred in unimportant amounts in virtually every field but stem rust was noticed only occasionally. (H. B. Humphrey, Division of Cereal Crops and Diseases).

GRAIN DISEASES IN SOUTH CAROLINA: On a trip from Clemson to our Edisto Station, Blackville, South Carolina, about 50 miles south of Columbia, I saw no stem rust and very little leaf rust. Mr. W. C. Nettles, the Extension Pathologist and Entomologist, who has spent considerable time over a period of 3 or 4 weeks on a survey of diseases of small grains, says that he saw very little stem rust. He reports, however, that there was considerably more leaf rust than last year. Last year was a very light leaf rust year for South Carolina. Another observation of interest concerns powdery mildew of wheat, which was very general last year and serious in many fields. This year, Mr. Nettles says that he did not see any powdery mildew.

He reports, also, that none of the growers mentioned oat smut [Ustilago sp.] to him and that he saw very few smutted heads. Coker's smut-resistant oats are being widely planted and we suspect that this is a big factor in the low incidence of smuts.

Barley is still a crop of minor importance in this State but there has been a decided increase in the acreage in the past 2 or 3 years. Where seed treatment was not practiced, both stripe [Helminthosporium gramineum] and covered smut [Ustilago hordei] were generally found. Mr. Nettles reports a case in one field of about 15 acres where both of these diseases were rather prevalent and a loss of about 50% was being incurred. Marrett's barley and the Clemson barley are being grown rather generally and both of these seem to be very resistant to powdery mildew. (Geo. M. Armstrong, Clemson Agricultural College. June 20).

SMALL GRAIN DISEASES IN TEXAS: Around Denton small grains surviving the greenbugs have been very slow in maturing owing to the moderate to cool weather. Leaf rust of wheat spread very slowly during the season and even on the most susceptible strains has reached a maximum of only 50% infection. Stem rust has not appeared this year owing to the cool weather. Septoria tritici again has caused serious defoliation. For the past 3 seasons this organism has been an important factor in yield.

The cooperative small grain nurseries at the U. S. Cotton Field Station, Greenville, were observed on May 7 and again on May 30. Crown rust infection was heavy in this planting even on Victoria hybrids. Only a trace of stem rust was present. Considerable leaf rust [Puccinia anomala] on barley was noted. Septoria tritici was prevalent in the wheat nursery. Very low infection of either leaf rust or stem rust was present. (I. M. Atkins, Division of Cereal Crops and Diseases).

REPORT ON CEREAL DISEASES IN KANSAS TO JUNE 15, 1942: The threatened leaf rust epiphytotic on winter wheat in Kansas failed to materialize owing to unusually cold weather during May and early June. Primary infections were abundant in April but temperatures were too low for heavy infection and rapid development during May. Infections are heavy along the eastern edge of the area of heavy wheat acreage extending from Harvey County straight north into Nebraska on a line running through Manhattan. In western Kansas dry weather during May dried up leaves and little leaf rust has appeared there to date. Moderate infection is present in low spots, river bottoms, and occa-

sional localities, but in general infection is very light. In eastern Kansas the acreage of wheat is small and the crop is late owing to late sowing. Leaf rust infection in that area was light on June 12.

The first infections of crown rust of oats, stem rust of oats, and stem rust of wheat were found at Manhattan on June 5. Crown rust of oats is developing rather rapidly and now is well distributed. Only traces of both of the stem rusts can be found in most fields at the present time. It has been much too cold for the rapid development of stem rust. Traces of stem rust of wheat, stem rust of oats, and crown rust of oats were observed in southeastern Kansas on June 10 to 12. No stem rust has been reported from the western half of the State. In general it now seems certain that 1942 is not to be a year of severe rust infection in the Central Plains area. Leaf rust of wheat will cause losses in some localities and crown rust of oats remains a potential threat. Stem rust seems unlikely to be severe on any crop. This is due partly to unseasonably cold weather and partly to a shortage of inoculum from the south.

Leaf blotch caused by Septoria tritici is moderately heavy in southeastern counties, especially on Kawvale. The disease also is present but not severe at Manhattan. Lesions appearing to be caused by Septoria sp. were observed on winter barley and spring oats at Thayer, Kansas, on June 10.

Winter barley is good in the eastern half of Kansas this year. Some fields were severely attacked by mildew and at present some fields show heavy infections of barley leaf rust. Only a little leaf rust has been seen on spring barley. Covered smut was observed in some fields of winter barley and loose smut [U. nuda, etc.] is common in spring barley. Loose smut [U. avenae] was observed to be abundant on Kanota oats in southern Kansas on June 10 to 12.

The acreage of rye in the State is larger than usual this year probably because of the inability of farmers to plant winter wheat at the proper time. Nearly all rye is heavily infected with leaf rust [P. rubigo-vera secalis] although many individual plants show resistance. (C. O. Johnston, Division of Cereal Crops and Diseases).

CEREAL LEAF RUSTS IN SOUTH DAKOTA: Barley leaf rust was first observed at Brookings June 18 and is prevalent but not yet severe. Inasmuch as barley is for the most part headed out it may be surmised that eventual leaf rust damage will probably be less than on oats and wheat. Barley is already exhibiting the usual gamut of defoliation diseases other than the rusts so that rust damage will probably be obscured, perhaps limited, by other fungous and bacterial leaf pathogens. Leaf rust of wheat is now present on the top leaf of susceptible varieties and will soon be severe. (W. F. Buchholtz, South Dakota Agricultural Experiment Station. June 26).

CEREAL DISEASES OBSERVED IN SOUTHERN CALIFORNIA AND ARIZONA: (April 26 to May 6). Baart 38 is now grown on nearly all the wheat acreage in Kings County (Tulare Lake), California, and in the Salt River Valley of Arizona. Mixtures of Pacific Bluestem in the original release still persist, despite severe rust epidemics in 1940 and 1941, in about the original proportion of 1 plant in 800. New seed stocks,

free of mixtures, are in the hands of a few growers so certification of the mixed stocks will probably cease with this crop. White Federation 38 is probably the only variety now grown in the Imperial Valley of California.

Rather severe mildew was observed on White Federation 38 in the Imperial Valley, and on Ramona in the Antelope Valley.

Slight traces of stem rust were seen on White Federation 38 in the Imperial Valley, with a moderate rusting of Ramona on the Experiment Station. Stem rust overwintered on an August planting at Tucson, Arizona. Severe rusting of Baart and Sonora, slight (3 type) rusting of Thatcher, and no rusting of Kubanka occurred in this planting; whereas adjacent plantings of these varieties made at later dates showed only traces of rust spread from the August planting.

No stem rust was seen on oats.

Light traces of leaf rust were seen in the Imperial Valley on wheat and on barley.

Stripe rust [P. glumarum] occurred in light to severe infections over all the area visited, particularly on White Federation 38. In Arizona characteristic stripes and leaf curling without sporulation were seen. In the Imperial Valley the situation was similar, though here some of the "stripes" were actually producing a few spores. In southern San Joaquin Valley sporulation was abundant. This was the most widespread and severe expression of stripe rust I have ever seen in California.

Smut in wheat was not seen. Covered smuts of barley and oats were frequently encountered, but seldom in more than trace amounts.

Barley stripe was not seen. Scald [Rhynchosporium secalis] was light in the San Joaquin Valley and absent elsewhere. Net blotch [Pyrenophora teres] was general but not severe. A blotch (smaller blotches than spot blotch) was general, but light in Arizona. (C. A. Suneson, Division of Cereal Crops and Diseases).

CEREAL DISEASES IN CENTRAL CALIFORNIA: Report on a field trip (May 18 to May 20) in San Joaquin, Merced, and Stanislaus Counties. On wheat light to medium heavy infections of stripe rust are general for the area. Septoria is general, but not severe. Foot rot was observed as "taking" an occasional single plant. A trace of leaf rust was observed in southern Merced County.

On barley scald is rather severe in the eastern San Joaquin Valley, even on January 1 plantings. Some stripe (maximum infection 1%) was observed. Foot rot occurred as described for wheat. Mild infections of mildew were evident in a few localities. Covered smut was encountered in trace amounts.

No diseases were noted on oats. (Ogden C. Riddle, Division of Cereal Crops and Diseases).

REPORTS ON DISEASES OF FRUIT CROPS

RED STELE OF STRAWBERRY ON PATHFINDER AND ABERDEEN: Red stele root rot (Phytophthora fragariae) has caused severe losses in Illinois

during the present season. The severity of the disease is probably due to favorable weather conditions for the development of the fungus in the soil. A relatively dry April was followed by a wet May with continuous cool periods followed by high temperatures during the fruiting period. Under these conditions the resistant Pathfinder, which is being extensively grown to replace the susceptible Premier in Eastern Illinois, has saved many of the growers from almost complete loss of their crop. Blakemore was hard hit in the Farina region (South-central Illinois).

At Urbana a 3-year-old row of Aberdeen on infested soil showed some red stele and at Paris, (Edgar County), Pathfinder was found to be infected in several fields although the injury was very slight compared to other varieties. These 2 varieties have been regarded as very resistant if not immune by a number of observers in this country and in Scotland. Our field observations were confirmed by microscopic examination. It is probable that these varieties have sufficient resistance to be utilized where the soil is known to be infested in spite of their lack of complete immunity. (H. W. Anderson and A. S. Colby. University of Illinois).

APPLE SCAB IN RHODE ISLAND: A major discharge of apple scab (Venturia inaequalis) spores took place with the rains of the week-end of May 16. By May 29 scab lesions were appearing on unsprayed or poorly sprayed McIntosh leaves. At that time most of the ascospores had been discharged but enough, between 10 and 25%, remained to cause infection during the next rain, and some were still shooting during the rain on June 4. Scab is much more abundant this year than last. (F. L. Howard, Rhode Island State College).

FRUIT DISEASES REPORTED FROM NEW YORK (Summarized from the weekly issues of the New York State College of Agriculture Weekly News Letter concerning Insect Pests and Plant Diseases, to July 6): In some areas where the rainy weather was of long enough duration an apple scab infection occurred about May 3 to 4, but the first general infection period was reported as probably May 6 to 7, when temperatures were low and leaves were wet for some time. Further primary infection was reported about 10 days later, and again starting about the 20th. During this last period some secondary spread was possible since the first scab lesions on the leaves were reported as appearing May 18 to 21 in various counties. Weather was favorable for the spread of scab during the first part of June; however, in the best sprayed orchards the disease is very well controlled and infection on fruit is scarce. The importance of spraying is evidenced by J. G. Goodrich's report from Niagara County (June 22) "Apple scab infection is about the most severe in a number of years and promises to cut the crop very markedly, owing partly to neglect by owners who either do not have the help to farm properly or else are working in the cities themselves." He added that scab on the stems might be responsible for some of the severe drop of McIntosh fruit, although the main cause was probably poor fertilization since most of the dropped fruits have only a small core of seeds. As usual, in properly cared for orchards in this county, the disease is "so well checked that scab spots are few and far between on the foliage, and practically none on the fruit" according to his report of June 15.

Quince rust (Gymnosporangium clavipes) was first observed on Delicious apples in Dutchess County May 22. Apple rust (G. juniperi-virginianae) has appeared in Dutchess and other Hudson Valley counties and in Suffolk County on Long Island, apparently only on the leaves as yet. Fire blight (Erwinia amylovora), where reported was not very serious. Powdery mildew (Podosphaera leucotricha) was observed on the terminals of Cortland and other rapidly growing varieties in Niagara County (June 8).

F. H. Lewis reported that apothecial fundaments of the brown rot fungus (Monilinia fructicola), with some cups just beginning to form, were found on old peach mummies Wayne County April 24, and about the same time C. G. Small found mature apothecia on peach and prune mummies in Ulster County. In Wayne County the fungus was found fruiting on the pistil of a sweet cherry flower within 38 hours after the beginning of the May 3-4 rain. During June brown rot was generally reported as prevalent on ripening sweet cherries, especially where not well sprayed. In Ulster County C. G. Small reported (June 8) "Some brown rot is appearing on sweet cherries which are nearly ripe. Growers who have used the new organic fungicide 'Fermate' [ferric dimethyl dithiocarbamate] appear to have obtained excellent control even on Seneca cherries, which show severe cracking. This cracking occurred early when the cherries were still green and only partly grown, and there is some possibility of its being due to lack of boron." Cracking of sweet cherries favoring brown rot infection was reported from Columbia and Monroe Counties also.

Some brown rot was reported on sour cherries in Wayne and Niagara Counties and in the latter county some infection occurred on prunes, mostly at curculio punctures. On peaches the disease does not seem to be very prevalent so far. Some blossom and twig blight was reported from Dutchess, Orleans, and Niagara Counties, and in Orange County J. D. VanGeluwe reported brown rot increasing on peaches, particularly on some of the early varieties (June 22). Some twig infection was observed on nectarines in Wayne County, June 4.

Peach scab (Cladosporium carpophilum) and mildew (Sphaerotheca pannosa var. persicae) were reported in Orange County, and leaf curl (Taphrina deformans) in Monroe and Niagara Counties. Valsa cankers caused considerable damage in some young peach orchards in Monroe County, according to R. S. Granger (May 25).

Cherry leaf spot (Coccomyces hiemalis) is apparently not very abundant.

Serious and general dropping of leaves of sour cherries caused by the virus disease cherry yellows ("physiological leaf drop") started during the week ending June 15 in Niagara, Monroe, and Wayne Counties. J. G. Goodrich in Niagara County reports that it seems especially prevalent this year and many growers are alarmed by its spread. Three additional stone fruit virus diseases were found in Niagara County: X-disease on chokecherries which were turning yellow although the disease was not yet evident on peach trees; ring-spot in one cherry orchard; and prune mottle in a prune orchard (June 22).

Botrytis rot attacked gooseberries, currants, and sweet cherries in Ulster County but caused little damage, according to C. G. Small

(June 8). In Orange County, J. D. VanGeluwe reported that it became rather serious on currants during the latter part of May but was well controlled by many growers with the regular rotenone gooseberry fruit worm spray with 3-3-100 bordeaux (May 25, June 8).

A severe wilting, probably caused by Verticillium, occurred in several raspberry plantings in Monroe County, where potatoes, tomatoes, and especially eggplant had been grown within the last several years, according to R. G. Palmer (June 8).

FRUIT DISEASES IN PENNSYLVANIA: The earliest infection of apple scab observed was in Adams County, by H. Miller on May 6. In the central and southeastern part of the State dry weather until after bloom prevented early infections and scab in this area is far below the average in severity. In the northern part early infections took place and scab is more severe than usual. Fire blight was first observed May 15 in Franklin County. The dry weather until mid-May followed by above-normal rainfall caused a period of rapid twig growth that was favorable to fire blight and it is now more severe and destructive than usual. Frog-eye leaf spot (Physalospora obtusa) was first observed by G. L. Zundel in Juniata County, May 20. Dry weather until mid-May in the southeastern part of the State checked the disease until the rainy period started. In this area the disease will be below the average in severity. Rust (Gymnosporangium juniperi-virginianae) was first observed on apple in Berks County, June 17, and apparently will be below average in occurrence. Bitter rot (Glomerella cingulata) was first observed on apples July 8 at Center Square, Montgomery County. Bark canker (Myxosporium corticolum) first noticed June 5 in Lehigh and Montgomery Counties, was slightly more common and destructive than usual.

The first blossom and twig infections of peach brown rot were observed on May 21 by A. H. Bauer in Carbon County. In the southeastern part of the State where dry weather lasted until the shuck-fall period no blossom or twig infection was found. Some twig infection occurred in other parts of the State where there was more rain before shuck-fall. Peach scab is appearing on the green fruit earlier than in most years. It was first observed June 10 in Lehigh County.

Crown gall (Phytomonas tumefaciens) was found by O. S. Cannon on a number of sweet cherry trees in one Erie County orchard, May 7.

Black rot (Guignardia bidwellii) has been found on unsprayed grape leaves in Lancaster, Carbon, and Erie Counties, being first noticed June 9 in Lancaster County. (R. S. Kirby, Pennsylvania State College).

BRIEF NOTES ON PLANT DISEASES

WEED CONTROL BY PLANT DISEASES IN KANSAS: In a spot in which there is almost a solid stand of the weed narrow-leaved goosefoot, Chenopodium leptophyllum, a leaf spot caused by Cercospora dubia already has killed many of the plants and soon will destroy practically all of them. This is one of the finest examples I have seen of biological control of weeds.

I saw one other interesting case this spring. The common henbit, Lamium amplexicaule, is a noxious weed in lawns and waste places here. In certain places this spring that weed was completely eliminated by the attack of some mildew, apparently a species of Erysiphe. (C. O. Johnston, Division of Cereal Crops and Diseases. July 8).

DISEASES OF VEGETABLES AND OF ORNAMENTAL PLANTS REPORTED FROM PENNSYLVANIA: On cabbage, club root (Plasmodiophora brassicae) was first noticed June 19. It is showing up in more seedbeds than usual in Erie County. Black rot (Phytomonas campestris) was observed in Delaware County, June 19.

Carrots in storage at Bristol, Philadelphia, observed February 26, were affected by black root (Alternaria radicina) [Stemphylium radicinum].

Leaf spot (Macrosporium [Alternaria] solani) of eggplant was first observed on June 2 at Smoketown, Lancaster County. It was severe in seedbeds on plants 8 to 12 inches high.

Blight (Ascochyta pisi) of canning peas is apparently more widespread and destructive than usual. It was first observed May 29 in York County.

Soft rot (Erwinia carotovora) of iris is about as severe as usual at State College, where it was first observed June 10.

Leaf spot (Colletotrichum violae-tricoloris) of pansy is more severe than for several years. It was first observed at State College on June 14.

Canker of privet caused by Glomerella cingulata was observed June 13 at State College. Cankers were formed on the stems of the new growth and killed many shoots at the base of the bush. (R. S. Kirby, Pennsylvania State College. June 30).

BACTERIAL WILT AND SMUT ON SWEET CORN: Bacterial wilt (Phytomonas stewarti) was observed in Rockland County, New York, on June 12, according to Wm. J. Clark. F. M. Gordon reported (June 27) " A small amount has been seen in some of the sweet corn plantings in Nassau County, Long Island. Up to the present time it has been light even on the more susceptible varieties."

In Pennsylvania bacterial wilt was first observed June 19 at Hopewell, Bedford County, according to R. S. Kirby.

Small amounts of smut (Ustilago zeae) were reported from Nassau County by Gordon.

FLAX DISEASES IN SOUTHEASTERN KANSAS: Flax in southeastern Kansas varies from poor to excellent this year with a rather extensive excellent area in the neighborhood of Chanute. A little wilt [Fusarium lini] was observed in commercial fields and in experimental plots at Thayer. Considerable dodder [Cuscuta sp.] and a target-board leaf spot also were observed at Thayer. (C. O. Johnston, Division of Cereal Crops and Diseases. June 15).

LEAF SPOTS ON BLUE GRASS AND ALFALFA IN PENNSYLVANIA: Blue grass leaf spot (Helminthosporium vagans) was more common and destructive on lawns throughout the State than for several years.

Wet weather has allowed alfalfa leaf spot (Pseudopeziza medicaginis) to kill many of the lower leaves of the first cutting. (R. S. Kirby, Pennsylvania State College. June 30).

CHECK LIST REVISION

Freeman Weiss

SABAL (PALMACEAE)

SABAL spp., PALMETTO, especially S. CAUSIARUM (Cook) Becc., PUERTO RICO HAT PALM of the West Indies, and S. PALMETTO (Walt.) Lodd., CABBAGE PALMETTO, of the S. E. Atlantic Coast from N. Car. to Fla. (also several closely related spp. as S. minor (Jacq.) Pers., dwarf palmetto, S. louisiana (Darby) Bomhard and S. texana Becc. occurring from Ga. to Texas), grown for ornament in the Gulf States and Calif.

Anthostomella spp., on dead leaf stalks and blades. Ga. to Fla. & La. (Spp. reported include A. leucobasis (Ell. & Mart.) Sacc., A. melanosticta Ell. & Ev., A. minor Ell. & Ev., and A. sabalensioides (Ell. & Mart.) Sacc.

Amerosporium sabalinum Ell. & Ev., on dead leaves. La.

Asterina sabalicola Earle, on living leaves. Fla., Ga.

Cocconia sparsa (Pk. & Cke.) Sacc., on leaf stalks. Fla.

Cenangium sabalidis (Ell. & Mart.) Sacc., on leaf stalks. Fla.

Ellisiodothis inquinans (Ell. & Ev.) Theiss., on dead leaves. Fla., La., Miss.

Fomes aratus Sacc. & D. Sacc. (Ganoderma sulcatum Murr.), on dead trunks. Fla., Ga.

Gnomonia sabalicola Earle, on leaf stalks. Ala.

Graphiola spp., false smut. (G. congesta Berk. & Rav.), Ala., Fla., S. Car.; G. phoenicis (Moug.) Poit., Fla., Miss., P. R.; G. thaxteri E. Fisch., Fla.

Helminthosporium spiculiferum Ell. & Ev., leaf spot. La., Miss.

Hendersonia sabalcos Ces., on leaves. Miss.

Leptostroma micropunctum Cke., on leaves. S. Car.

Linospora palmetto Ell. & Ev., on leaves. La.

Melanconium palmarum Cke., on leaf stalks. Fla.

Meliola palmicola Wint., black mildew. Gulf States, Canal Zone, P. R., T. H.

Metasphaeria palmetta (Cke.) Sacc., on leaf stalks. Ga.

Mycosphaerella serrulata (Ell. & Ev.) Diehl in herb., leaf spot. Fla., S. Car. (Sphaerella sabaligena Ell. & Ev. also reported on dead leaf tips in La.)

Ophiobolus versisporus Ell. & Mart., on leaf stalks. Fla.

Pestalotia palmarum Cke., on leaves. Fla.

SABAL spp. -- continued.
Phyllosticta palmetto Ell. & Ev., leaf spot. La., Miss.
Phytophthora palmivora Butl., bud rot. P. R.
Polyporus tulipiferus (Schw.) Overh., on dead trunks. Fla.
Poria heteromorpha Murr., on leaf stalks. Fla.
Rhabdospora sabalensis Cke., on leaf stalks. La., S. Car.
Schizophyllum commune Fr., on dead trunks. S. Car.
Septobasidium sabalis Couch, fungus felt. La.
S. sabal-minor Couch. Fla.
Sphaeropsis sabalicola Ell. & Carver, on leaf stalks. Ala.
Trametes cubensis (Mont.) Sacc., on dead trunks. Fla.
Valsa sabalina Cke., on leaf stalks. Ala., Fla., Ga.
Venturia sabalicola (Ell. & Ev., on dead leaves. La.

SALIX (SALICACEAE)

SALIX spp., WILLOWS. Occurring on various or unspecified hosts.
Aleurodiscus spp., on bark usually of dead or some times living branches. A. macrodens Coker and A. oakesii (Berk. & Curt.) Cke. reported in Eastern States; A. griseo-canus (Bres.) Höhn. & Litsch. in Iowa & Mo.
Armillaria mellea Vahl ex Fr., root rot. Calif., Wash.
Asteroma caprearum Desm., on leaves. Conn.
Botryosphaeria ribis (Tode ex Fr.) Gross. & Dug. (including var. chromogena Shear et al), branch & trunk canker. Md. to Fla. & Ark., W. Va.
Capnodium salicinum Mont., sooty mold. Calif., Wis.
Cenangium populneum Pers. ex Rehm, on dead branches. Colo.
Cercospora salicina Ell. & Ev., leaf spot. Ill., La., Md., Texas.
Chlorosplenium aeruginosum (Ced.) DeNot., green wood stain. Widespread.
Ciboria acerina Whetzel & Buchwald, on staminate catkins. N. Y.
C. caucus (Reb. ex Pers.) Fckl. N. Y., Oregon.
Coccomyces salicinus (Ell. & Ev.) Sacc., on dead branches. Mont.
Collybia velutipes Fr., commonly on stumps & logs, sometimes in wounds of living trunks. N. Y., N. Dak.
Coniothyrium sp., on twigs. Conn.
C. fuliginoum (Karst.) Sacc. Alaska.
C. spokanense Sacc. Wash.
Corticium bombycinum (Sommerf.) Bres., on bark, sometimes of living trunks. N. E. States, Texas, Wash. (Other spp. frequent on dead wood.)
Coryneum salicinum (Cda.) Sacc., on twigs. N. Dak.
C. pezizoides Ell. & Ev. Colo., Idaho.
Cryptodiaporthe salicina (Curr.) Wehmeyer (Discella carbonacea (Fr.) Berk. & Br.), branch & twig canker. Me. to Va., Kans. & S. Dak.; Calif., Wash., Alaska.
Cryptomyces maximus (Fr.) Rehm, bark blister. N. Mex.
Cryptosporiopsis scutellata (Otth.) Petr. Conidial stage of Ocellaria ocellata.
Cuscuta spp., dodder. Utah. C. gronovii Willd., N. Y. C. megalocarpa Rydb. Wash.

SALIX spp. -- continued

Cylindrocarpon magnusianum (Sacc.) Wr. Conidial stage of Neonectria ramulariae Wr.

Cylindrosporium salicinum (Pk.) Dearn., leaf spot. Mass. to Colo. & Wis.; Miss.

(C. conservans Pk. is probably the same).

Cytidia flocculenta (Fr.) Höhn. & Litsch., on trunks & branches at times of living trees. Alaska, Mont., Wyo.

C. salicina (Fr.) Burt, on dead branches. Widespread.

Cytospora spp. (especially C. chrysosperma Pers. ex Fr., C. nivea Hoffm. ex Fr., C. salicis (Cda.) Rabh., and C. translucens Sacc.), on twigs & branches, causing or secondary in dieback. Widespread. Conidial stage of Valsa spp.

Daedalea confragosa Bolt. ex Fr., white spongy heart rot, often on living trees. Widespread.

D. ambigua Berk., wood rot. N. Car., Va.

D. unicolor Bull. ex Fr. N. E. States to Va., Kans. & S. Dak.

Daldinia concentrica (Bolt. ex Fr.) Ces. & DeNot., wood rot. Widespread.

D. grandis Child and D. occidentalis Child. Western States.

Diaporthe tessella (Pers. ex Fr.) Rehm, on branches, ? canker. Iowa, La., N. Y.

Diplodia sp., ? twig blight. Calif., Texas, W. Va. Reported as D. salicina Lev. in W. Va. (= D. sarmentorum Fr.) but doubtful.

Diplodina spp., twig blight. Md., Mass., W. Va. (Reported as D. salicis. Westend. or D. salicicola (Johnson) Sacc. & Trav. but probably immature stages of the following:

Discella carbonacea (Fr.) Berk. & Br., twig blight, canker. N. E. States. Conidial stage of Cryptodiaporthe salicina.

Discula microsperma (Berk. & Br.) Sacc., on twigs. Calif.

Dothiora polyspora Shear & Davidson, twig canker & dieback. Colo.

Dothiorella sp., branch canker. Ark., N. Dak.

D. pyrenophora (Karst.) Sacc., var. salicis Karst. on twigs. Alaska.

D. ribis (Fckl.) Sacc. Conidial stage of Botryosphaeria ribis.

Fomes spp., wood rot commonly of dead trunks and logs, heart rot and sometimes sap wood rot of living trees. Spp. reported include: F. applanatus (Pers. ex Fr.) Gill., Conn., N. Y., Wis.; F. conchatus (Pers. ex Fr.) Gill., Mont., N. Y., N. & S. Dak.; F. connatus (Weinm. ex Fr.) Gill., N. Y.; F. fomentarius (L. ex Fr.) Kickx, Ala.; F. fraxinophilus Pk., N. Y.; F. igniarius (L. ex Fr.) Kickx, including var. nigricans Fr., white spongy heart rot, Ind., N. Y., Idaho, Wash., Alaska.

Fusicladium saliciperdum (Allesch. & Tub.) Tub., scab, twig blight. New England to N. J. & Pa.; N. Car. Conidial stage of Venturia chlorospora, which has been reported as occurring naturally in the U. S. only in Colo., though collected in Greenland and possibly in Alaska. Whether this fungus or Physalospora miyabeana (q.v.) is the primary cause of willow shoot blight is still in controversy.

SALIX spp. -- continued

Ganoderma lucidum (Leys. ex Fr.) Karst., wood rot. Va.

Gloeodes pomigena (Schw.) Colby, on twigs. Ind.

Gloeosporium spp., leaf spot., twig blight. Conn., Del., Mass. (Probably in part the conidial stage of Physalospora miyabeana.)

G. boreale Ell. & Ev., leaf spot. Vt., Wyo.

G. salicis Westend. (Gloeosporidiella salicis (Westend.) Nannf.), leaf spot, twig blight. Vt. to N. J., Miss. & Wis.; Oregon. Conidial stage of Pseudopeziza salicis.

G. weirianum Sacc. (Calogloeum weirianum (Sacc.) H. Syd.), on catkins. Colo., Mont.

Helicobasidium purpureum (Tul.) Pat. (Rhizoctonia crocorum (Pers.) D. C.), root rot. Texas.

Hendersonia lineolans (Schw.) Starb., on branches. Pa.

Heterodera marioni (Cornu) Goodey, root knot. Miss.

Hydnum ochraceum Pers. ex Fr., on dead wood. Widespread.

Hypoxylon spp., on dead wood. Many spp. reported, frequently H. morsei Berk. & Curt. and H. rubiginosum Pers. ex Fr. Widespread.

Lenzites betulina L. ex Fr., L. saepiaria Wulf. ex Fr., and L. trabea Pers. ex Fr., brown cubical rot of trunks & logs. Widespread.

Lophium dolabriforme Wallr., on dead twigs. Colo.

Lophodermium versicolor (Wahl. ex Fr.) Rehm, on leaves. Colo., Pa., ? Alaska.

Macrophoma sp. (? Phomopsis salicina (Westend.) Died.), canker, twig blight. Ark., Ky., Miss., N. Car., S. Car., Texas.

M. salicis Dearn. & Barth., on twigs. Mont.

Marssonina spp., leaf spot, rarely on twigs. Widespread. Most reports are without specific identification and several spp. have been described but are not clearly distinguished. Those reported in the U. S. and their distribution are: M. apicalis (Ell. & Ev.) Magn., Calif., Wis., Wyo.; M. kriegeriana (Bres.) Magn., Calif., Wis., Wyo.; M. nigricans (Ell. & Ev.) Magn., Calif.; ? M. populi (Lib.) Magn., Del., Mass., Okla., Wis.; M. rubiginosa (Ell. & Ev.) Magn., Idaho, Wis.; M. salicicola (Bres.) P. Magn. (conidial stage of Drepanopeziza sphaeroides (Fr.) Nannf.), Md., N. Y.; M. salicina Tehon, Ill.; M. salicis (Trail) Magn., Mass.

Melampsora abieti-capraearum Tub. (M. americana Arth.), leaf rust. Throughout the U. S. but not the far North. O and I on Abies spp., but persists in the uredinial stage.

M. arctica Rostr., leaf rust (II,III). Alaska, Colo., N. H. (formerly reported from Wis. to Wash. owing to confusion with the preceding.) O and I on Saxifragaceae but persists in the uredinial stage.

M. bigelowii Thüm., rust (II, III). Me to N. Car., Iowa, N. Mex. and Alaska. O and I on Larix spp. but persists in the uredinial stage and as mycelium in stems.

M. ribesii-purpureae Klob. (M. confluens (Pers.) Jacks.), rust (II, III). Mont. to Colo., Calif. & Alaska. O and I on

SALIX spp. -- continued
Ribes spp.
Microthyriella rubi Petr., on twigs. Ind.
Mycosphaerella salicina Ell. & Ev., on twigs. Kans.
Myxofusicoccum salicis Died., on branches. ? Ky., Wash.
Myxosporium cytosporeum Sacc., on branches. Wash.
M. salicinum Sacc. & Roum. Mass.
(M. scutellatum (Otth.) Höhn.): Cryptosporiopsis scutellata.
Nectria cinnabarina Tode ex Fr., on twigs associated with dieback. Widespread.
N. coccinea Pers. ex Fr., N. coryli Fckl. and N. galligena Bres., canker. Oregon.
Nummularia clypeus (Schw.) Cke., on branches. Md.
Ocellaria ocellata (Pers. ex Fr.) Schroet. (Cryptosporiopsis scutellata (Otth.) Petr.), branch canker. Colo., N. Car., N. Dak., Pa.
Pezizella oenotherae (Cke. & Ell.) Sacc., on leaves. Va.
Pholiota spp., on stumps & logs, sometimes sapwood rot of living trees. P. adiposa Fr. and P. spectabilis Fr., Northern States; P. aurivelloides Overh., Colo., N. Mex., Wyo.; P. oregonense Murr., Oregon.
Phoma sp., twig blight. Ark., N. Car.
P. platysperma Pk. Ill. (See also Sclerophoma).
Phomopsis salicina (Westend.) Died., twig canker. Iowa, Mass., Va.
Phoradendron flavescens (Pursh) Nutt., mistletoe. Calif., Ind., Texas.
P. macrophyllum Cock. Ariz., N. Mex.
P. longispicum Trel. Ariz., Calif.
Phyllactinia corylea Pers. ex Karst., powdery mildew. Wash.
Phyllosticta apicalis Davis, leaf spot. Kans., Wis.
P. salicicola Thüm. Conn., Idaho.
P. salicis Kell. & Swingle. Kans.
Phymatotrichum omnivorum (Shear) Dug., root rot. Texas.
Physalospora fusca N. E. Stevens, on branches. Oregon, S. Car.
P. gregaria Sacc., twig canker. W. Va.
P. obtusa (Schw.) Cke., on branches. Va. to Fla. & Tenn.
P. miyabeana Fukushi, black canker, ? blight. Me. to W. Va. (See also Fusicladium saliciperdum.)
P. rhodina (Berk. & Curt.) Cke., on dead branches. S. Car.
Phytomonas tumefaciens (EFS. & Town.) Bergey, crown gall. Widespread.
Pleurotus spp., commonly on logs & dead trunks, sometimes sapwood rot of living trees. Spp. reported include: P. ostreatus Jacq. ex Fr., Calif., Idaho; P. salignis Schrad. ex Fr., Mich.; P. serotinus Schrad. ex Fr., Mich.; P. ulmarius Bull. ex Fr., N. Car.
Polyporus spp., wood rot chiefly of dead trunks & logs; a few may occur on living trees. Spp. reported include: P. admirabilis Pk., N. Y.; P. adustus Willd. ex Fr., La., N. Car., Wis.; P. caesius Schrad. ex Fr., Mont.; P. cinnabarinus Jacq. ex Fr., N. Y., Wash.; P. dichrous Fr., N. Y.; P. dryophilus Berk., Ohio; P. elegans Bull. ex Fr., Alaska,

SALIX spp. -- continued

Idaho, Wash.; Polyporus fumidiceps Atk., Mo.; P. fumosus Pers. ex Fr., Calif; P. galactinus Berk., N. Y.; P. gilvus (Schw.) Fr., Nebr.; P. hirsutus Wulf. ex Fr. and P. pargamenus Fr., widespread; P. planellus (Murr.) Overh., Colo.; P. pubescens Schum. ex Fr., N. Y., N. W. States; P. sanguineus L. ex Fr., Mo.; P. squamosus Huds. ex Fr., N. E. States; P. sulphureus Bull. ex Fr., widespread; P. tulipiferus (Schw.) Overh., N. E. States; P. unitus Pers. and P. versicolor L. ex Fr., widespread.

Poria spp., wood rot of logs & slash. Spp. frequently reported are: P. ambigua Bres., Texas; P. andersonii (Ell. & Ev.) Neuman, Md.; P. ferruginosa (Schrad. ex Fr.) Cke., Alaska; P. punctata Fr., Mich., Minn.; P. reticulata Pers. ex Fr., Alaska; P. viticola (Schw.) Cke., N. Car., Pa.

Pseudopeziza salicis (Tul.) Poteb. (Gloeosporium salicis Westend.), leaf spot. Minn. (This is Drepanopeziza salicis (Tul.) Höhn. in Nannfeldt's terminology.)

Ramularia rosea (Fckl.) Sacc., leaf spot. Colo., Mont., Wis.

Rhytisma salicinum Pers. ex Fr., tar spot. General.

Schizophyllum commune Fr., wood rot, usually on dead branches & trunks. Cosmopolitan.

Scleroderris fuliginosa (Pers. ex Fr.) Karst., on branches, ? canker. N. Y.

Sclerophoma salicis Died. (?Cytospora salicis (Cda.) Rabh.), twig blight. Calif.

Sclerotinia foliicola Cash & Davidson, on fallen leaves. Colo.

Septogloeum maculans Harkn., leaf spot. Calif., ? Mont.

S. salicinum (Pk.) Sacc., leaf spot. N. Y., Wis., Alaska.

(S. saliciperdum Allesch. & Tub.): Fusicladium saliciperdum.

S. salicis-fendlerianae Dearn. & Barth., leaf spot. Idaho.

Septoria spp., leaf spot. Most of the spp. reported on willow in the U. S. have been transferred to other genera (see Cylindrosporium, Marssonina and Septogloeum) and some are European spp. not certainly known to occur here, thus: S. albaniensis Thüm. and S. salicina Pk. = Cylindrosporium salicinum (Pk.) Dearn.; S. salicis Westend. as reported here = Septogloeum salicis-fendlerianae Dearn.; S. salicicola (Fr.) Sacc. has been collected in Alaska & Oregon; S. didyma Fckl. is reported from Wis. but confirmation is lacking.

Solenia ochracea Hoffm. ex Fr., on bark sometimes of living trees. Northern States.

Sphaeropsis salicis Ell. & Barth., on dead twigs. Kans., Pa., Texas.

S. salicicola Pass. Md.

Stereum spp., wood rot of dead trunks & branches. Spp. frequently reported include: S. hirsutum Willd. ex Fr., Western States; S. purpureum Pers., Wash.; S. rameale Schw., widespread; S. rufum Fr., Colo., Idaho; S. rugosum Pers. ex Fr., Minn.

Trametes spp., wood rot chiefly of dead trunks & logs. T. hispida Bagl., widespread; T. malicola Berk. & Curt., Wis.; T. mollis (Sommerf.) Fr., Me.; T. rigida Berk. & Mont., La.;

SALIX spp. -- continued

T. sepium Berk., N. Y.; T. trogii Berk, Mich.

Trametes suaveolens L. ex Fr., wound rot, white spongy heart rot. N. E. States to Mont. & Alaska.

Trimmatostroma americana Thüm., on dead twigs. Widespread.

Uncinula salicis DC. ex Wint., powdery mildew. General.

Valsa spp., twig blight, canker; probably mostly secondary. See also Cytospora. Spp. frequently reported: V. boreela Karst., Idaho, Kans., Mich.; V. ambiens Pers. ex Fr., widespread; V. nivea Hoffm. ex Fr., Western States; V. salicina Pers. ex Fr., widespread; V. sordida Nits. (Cytospora chrysosperma Pers. ex Fr.), widespread; and others.

Venturia chlorospora (Ces.) Karst. (Fusicladium saliciperdum (Allesch. & Tub.) Tub.), on leaves. Colo. (Reported also from Greenland but usually known only in artificial cultures in the U. S.)

V. subcutanea Dearn., on leaves. Alaska.

Galls. Caused mostly by insects and related pests as cone gall by the gall midge Rhabdophaga strobiloides, stem gall by R. salicis, and warty leaf gall by the mite Eriophyes aenigma. Aerial galls caused by Phytomonas tumefaciens also.

Tracheobacteriosis. Cause unknown but believed bacterial. Md., Pa., Va.

(DIVISION OF MYCOLOGY AND DISEASE SURVEY).

JUNE WEATHER

(From U. S. Department of Commerce, Weekly Weather and Crop Bulletin for week ending July 7, 1942).

On a basis of monthly averages, June was characterized by nearly normal temperatures in nearly all sections of the country, extreme dryness in the far Southwest, and abnormally heavy rains in much of the interior of the country. Fig. 1 shows that the monthly mean temperatures were mostly 1° or 2° above normal in central and eastern States, with limited areas having plus departures of 4°. Also, in Pacific coast sections and in the Southwest about-normal warmth to 2° or 3° above normal was the general rule. On the other hand, from the upper Great Plains westward to the interior of the north Pacific area the month was somewhat cooler than normal; a few stations reported minus anomalies as great as 4° or 5°. For the country, as a whole, there was an unusually uniform distribution of near-normal temperatures.

Fig. 2, based on first-order stations only, shows a decidedly uneven distribution of precipitation. The amounts were above normal in most localities from Virginia northward, in the central Gulf area, central valleys, the southwestern Plains, and the far Northwest. The outstanding features were the persistent dryness in the Southwest and continued heavy rains in many interior localities, especially the southern Plains and upper Mississippi Valley. Some outstandingly heavy falls for the month included Des Moines, Iowa, 9 inches, the wettest June since

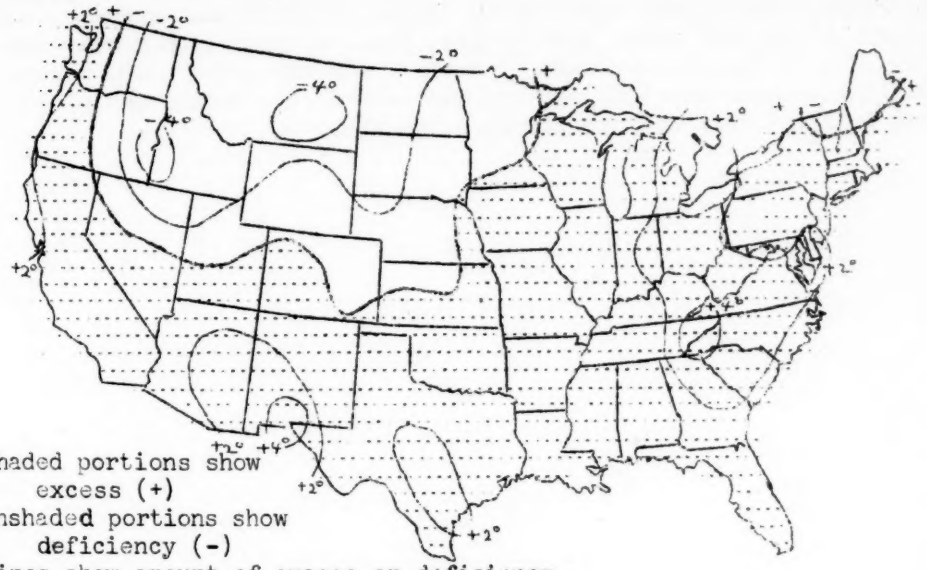

Figure 1. -- Departure of Mean Temperature from the Normal for June 1942.

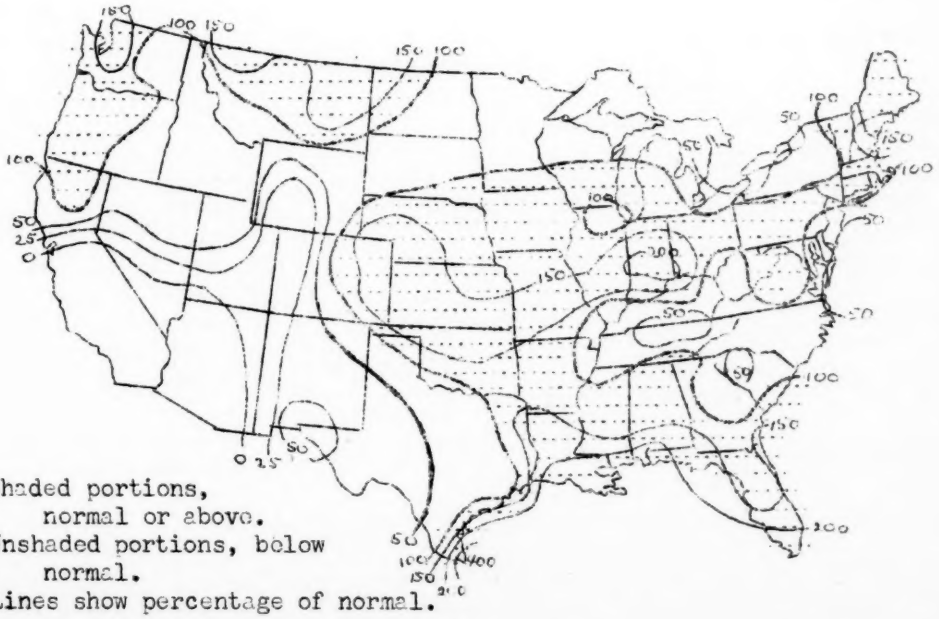

Figure 2. -- Percentage of Normal Precipitation for June 1942.

1924; Louisville, Ky., 8.48, the wettest of record, and Dodge City, Kans., 6.06 inches, the wettest since 1912. Also, rainfall was extremely heavy in parts of the Gulf area, Brownsville, Tex., having 13.06 inches and New Orleans 16.01, the greatest of record. On the other hand, a considerable southwestern area experienced another dry month, making the second in succession with practically no rain.